Oxadiazole is amongst the important classes of heterocyclic compounds that is the subject of intensive study of modern drug discovery. Synthesis of drugs containing oxadiazole moiety is attracting widespread attention due to their wide range of biological activities. In the present study, we developed a simple synthesis procedure for para-substituted 1,3,4-oxadiazole-2-thiones and their carboxymethyl derivatives based on the ring closure reactions of appropriate acid hydrazides with carbon disulphide. The synthesized compounds were characterized and evaluated for their anticancer and antimicrobial potential. The synthesized compounds significantly reduced the tumor weight and tumor cell count of Ehrlich ascites carcinoma (EAC) cells in mice. Almost all of the synthesized compounds showed significant antibacterial as well as antifungal activity. From the present investigation, it can be concluded that 1,3,4-oxadiazole compounds can potentially be developed into useful anticancer as well as antimicrobial agents. This study can prompt future researcher to synthesize a series of oxadiazole derivatives with the aim of finding newer anticancer and antimicrobial lead.

Dr. Pinaki Sengupta is a Ph.D from Jadavpur University, India and currently attached to the Dept. of Pharm. Tech., International Islamic University Malaysia (IIUM) as an Assistant Professor. Dr. Pinaki has more than ten years of experience in academic and industry based research. He published his research in various high impact journals.

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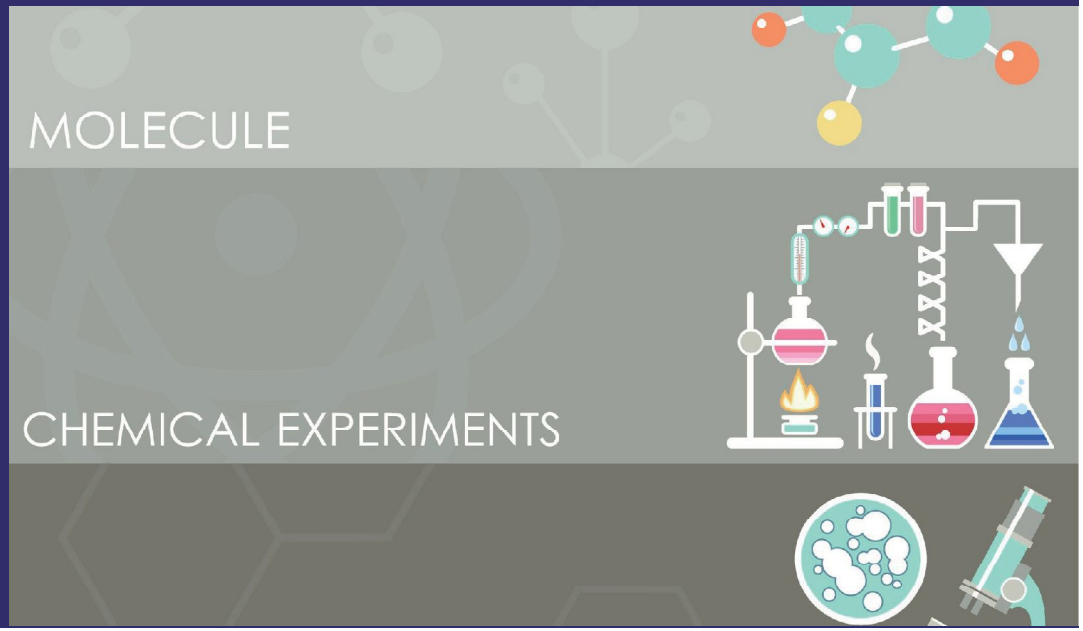

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